UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
NA S&PF
St. Paul Field Office

St. Paul FO Reports

REPLY TO: 5220 Detection S-5-77 November 4, 1977

SUBJECT: Forest tent caterpillar, spruce budworm, and drought surveys

TO: Forest Supervisor
Hiawatha National Forest

Insect and disease detection by aerial surveys were made June 23 and July 16, 1977 on the Hiawatha National Forest and surrounding areas by personnel from the Forest Insect and Disease Management and the National Forest. The purpose of the aerial surveys was to detect and delineate drought, spruce budworm, and the forest tent caterpillar damage.

The surveys were flown at about 1300 feet above the forest canopy at air speeds of 100-125 mph. A Piper PA-32 was used for spruce budworm and a Cessna 180 was used for the forest tent caterpillar survey. The flight lines were in an east-west direction six miles apart. The entire National Forest was surveyed for visible defoliation and mortality. The damage observed was sketched on a Forest map, 0.25 inches to the mile scale.

The following codes were used to designate defoliation by the forest tent caterpillar and the spruce budworm.

L - M. Light to Moderate, 20-50% foliage loss.

M - H Moderate to Heavy, over 50% foliage loss.

Areas of less than 20% defoliation could not be seen from the air.

The following are approximate acreages affected by the forest tent caterpillar in 1977 (Table 1, Fig. 1).

Table 1: Acres defoliated by the forest tent caterpillar.

Defoliation Class	National Forest	State & Private	Total
L - M	93,000	96,000	189,000
M - H	8,000	50,000	58,000
Total	101,000	146,000	247,000

Of the defoliated acreage, approximately 97,000 acres were on the West side of the Forest with 61,000 acres defoliated on National Forest land and 36,000 on private land (Fig. 1). Only 5,000 acres were classified

in the moderate to heavy defoliation category. On the East side of the Forest 150,000 acres were defoliated; 40,000 acres on National Forest land and 110,000 on private lands. Of the 53,000 acres of M - H defoliation, only 4,000 were on National Forest ownership.

The following are approximate acreages affected by the spruce budworm on or near the Forest (Table 2, Fig. 2).

Table 2: Acres affected by spruce budworm.

Defoliation Class	National Forest	State & Private	Total
L - M	76,000	23,000	97,000
M - H	11,000	3,000	14,000
Total	87,000	26,000	113,000

The M - H heavy defoliation was fairly well distributed between the West and East side of the Forest; the West had 6,000 acres while the East had 5,000 in this defoliation category (Fig. 2). The East side of the Forest had 47,000 acres in the L - M class while the West had considerably less with 29,000 acres of L - M defoliation. The total defoliation was up 15,000 acres since the last survey done in 1975.

Approximately 7,000 acres were detected which exhibited drought symptoms (Fig. 3). Species that showed damage included: red pine, jack pine, oak, and maple. As expected, the ridgetops and on rock outcrop areas showed the most drought-caused damage.

Because of the remoteness of a suppression action against either the forest tent caterpillar or the spruce budworm, no defoliation or egg mass surveys are scheduled for 1978.

James B Hanson

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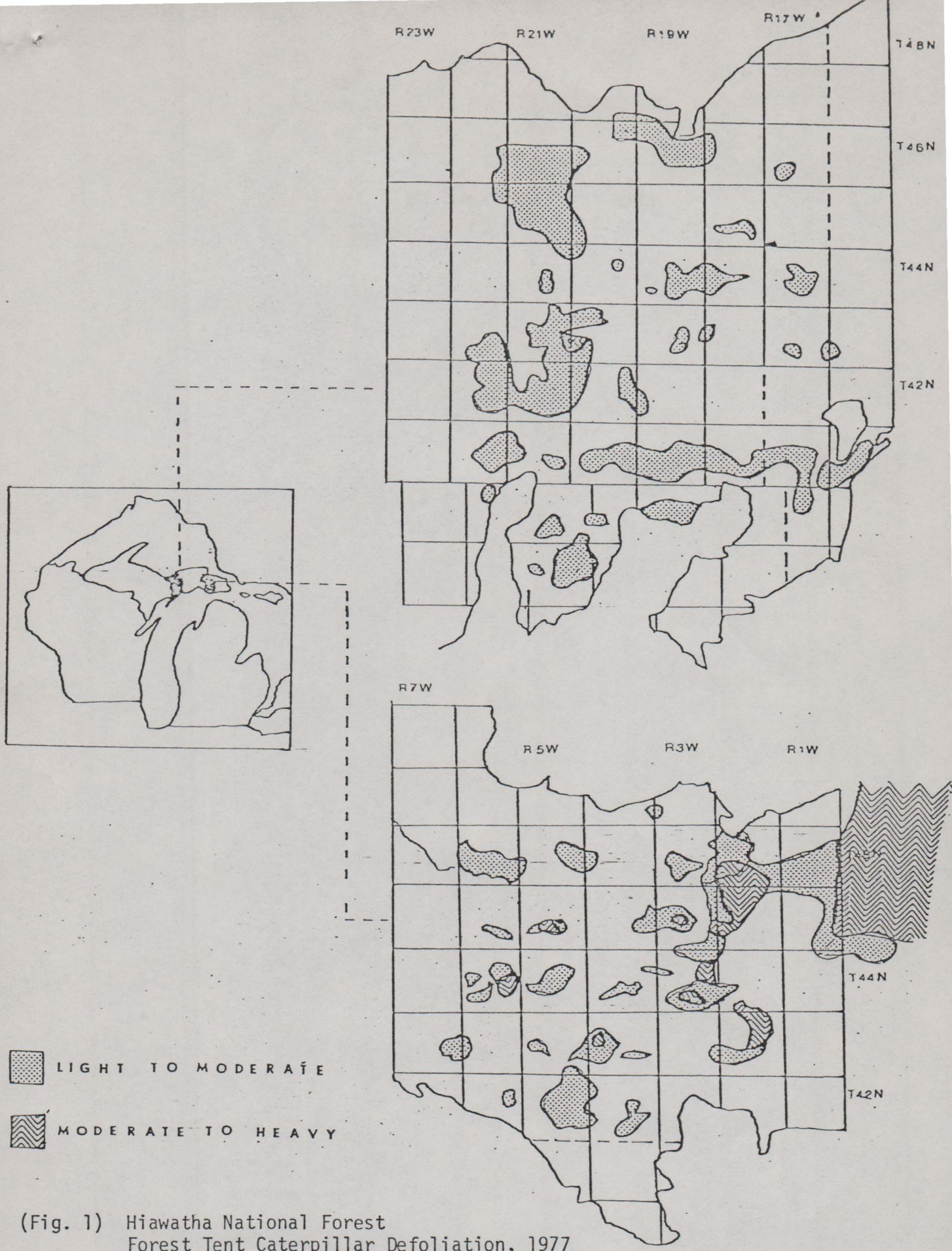
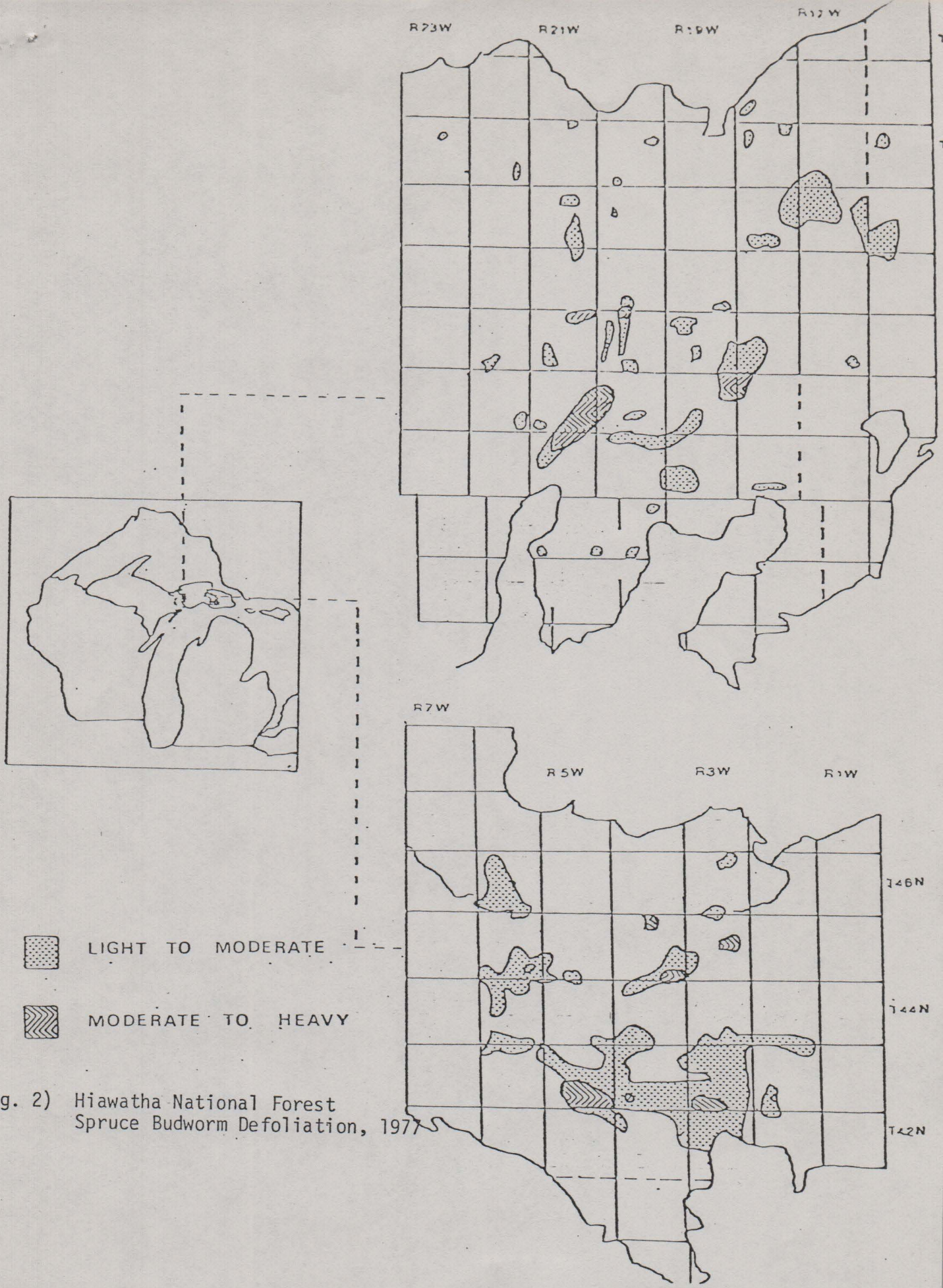
Forest Insect & Disease Management

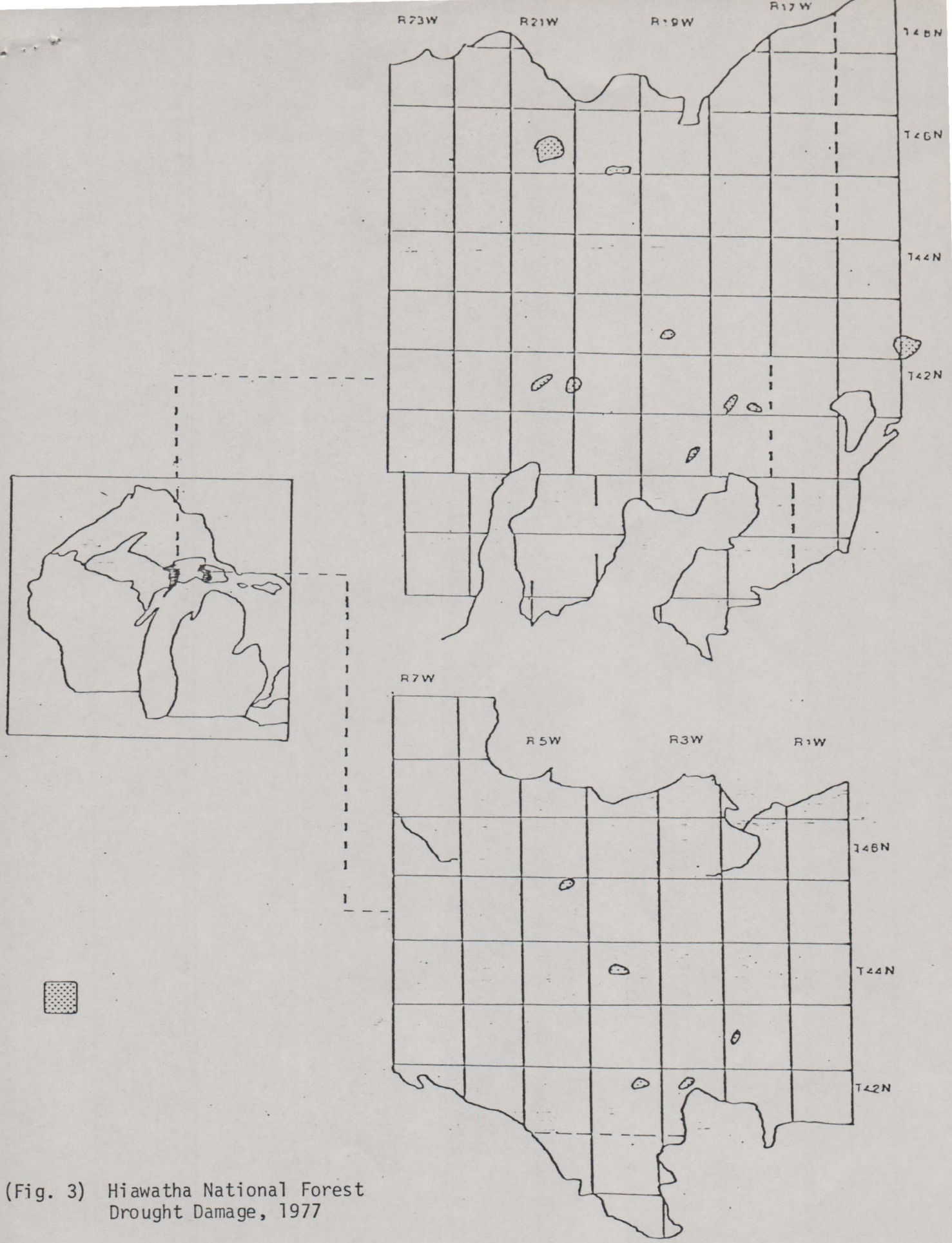
Enclosure



(Fig. 1) Hiawatha National Forest
Forest Tent Caterpillar Defoliation, 1977



(Fig. 2) Hiawatha National Forest
Spruce Budworm Defoliation, 1977



(Fig. 3) Hiawatha National Forest
Drought Damage, 1977